

Attorney Docket No. 62437

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
Francesca Pignagnoli

Serial No. 10/539,961

Art Unit: 1711

Filed: June 17, 2005

Examiner: John M. Cooney

For: POLYOL COMPOSITION AND POLCYANATE-BASED FOAM PREPARED
THEREFROMDECLARATION OF PAOLO GOLINI UNDER § 1.132

I, Paolo Golini, residing at Via Martiri di Cervarolo, nr 11, Reggio Emilia, Italy 42100, under the penalty of perjury, hereby declare the following:

1. I hold a Chemistry and Pharmaceutical Technology Degree from Milan University, Milan, Italy, awarded in 1985.
2. For the past 19 years, I have been working as a chemical research and development engineer for The Dow Chemical Company (2002-Present); and EniChem (1987-2001).
3. For at least 13 years, I have been working extensively in the field of chemical engineering with a concentration in rigid polyurethane foams (1994-present).
4. I am also one of the lead inventors listed in the U.S. Patent Application No. 10/539,961.
5. I have reviewed the following U.S. Patent Nos. 6,359,022; and 3,842,036, which were cited against the Application No. 10/539,961.
6. I have also reviewed the Office Action in response to the Application No. 10/539,961, dated September 11, 2006.
7. Additional comparative foam Nos. 3A, 3B, and 3C were prepared according to the formulations shown in Table I,

attached hereto as Appendix A, and tested for their fire retardancy properties, i.e. DIN 4102 B2 rating (cm), and smoke development (NBS). The results are also shown in Table I, attached hereto as Appendix A.

8. A comparison of the inventive foam No. 3 and comparative foam Nos. 4, 3A, 3B, and 3C clearly reveals that the inventive foam No. 3 possess unexpected improved fire retardancy properties, i.e. DIN 4102 B2 rating (cm), and smoke development (NBS), vis-à-vis comparative foam Nos. 4, 3A, 3B, and 3C. Such improved fire retardancy properties are unexpected because a person of ordinary skill in the art would not expect such improvements by using a blowing agent, i.e. formic acid.
9. I hereby declare that all statements made herein of my own knowledge are true and all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like are punishable by fine or imprisonment, or both under 18 U.S.C 1001 and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

This is the 2nd day of March, 2007..

Respectfully yours,



Paolo Golini

Appendix A

Table I

Pbw	Foam 1	Foam 2*	Foam 3	Foam 3A	Foam 3B	Foam 3C	Foam 4*	Foam 5	Foam 6	Foam 7*	Foam 8	Foam 9*
Polyol A	30.1	30	31	31	6	31	31	52.3	45.4	51	24.8	
Polyol B	25	25	30.5	30.5	30.5	30.5	30.5	/	/	/	24.7	47.6 (*)
Polyol C	11.5	11.5	/	/	/	/	/	/	/	/		
Polyol D	/	/	9.1	9.1	9.1	9.1	9.1	/	/	/		
Voranol CP1055 (Polyol E) **					25							
DEEP	11.5	11.4	9.8	9.8	9.8	9.8	9.8	8	12.9	11	8	12.89
TCPP	14	14	9.8	9.8	9.8	9.8	9.8	30	31.7	31.9	30	30.25
MEG	/	/	0.5	0.5	0.5	0.5	0.5	/	/	/		
L6900	/	/	/	/	/	/	/	/	1.98	1.5		
DABCO DC5598	1.8	1.8	2.95	2.95	2.95	2.95	2.95	3	/	/	3	3
DMCHA	0.47	0.4						0.2	/	/		0.05
DMEE	/	/	/	/	/	/	/	/	0.2	/		
Toyocat DM70	0.2											
PMDETA	/	0.07	0.1	0.1	0.1	0.1	0.1	/	/	/		
CURITHANE 52	/	/	4.92	4.92	4.92	4.92	4.92	/	3.03	/		
Dabco K15	0.33											
CURITHANE 206	1.74	2.2	/	/	/	/	/	1.5	/	0.7	1.45	1.5
DABCO TMR	/	/	1.0	1.0	1.0	1.0	1.0	/	/	/		
Water	1.91	3.15	/	0.8	/	/	1.2	/	1.98	3.12		1.98
Formic Acid	1.45	/	1.6	0.4	1.6	8.1	/	4.99	2.78	/	4	2.78
HFC 245fa												4
n-Pentane	/	/	9	9	9	9	9	/	/	/		
ISO A (Index)	188.5 (300)	231 (300)	180 (340)	195 (340)	174 (340)	300 (340)	180 (320)	/	/			
ISO B	/	/	/				/	160 (293)	168 (240)	180 (247)	143 (290)	179 (240)
Polyol blend stability	Clear ,stable	Clear ,stable	/	/	/	/		Clear ,stable	Clear ,stable	Clear ,stable	Clear ,stable	
Reactivity CT/GT (secs)	5/42	5/26	6/41	7/44	7/45	8/82		6/95	12/100	13/88	6/83	20/105
Free-Rise Core density (kg/m ³)	44.9	43.3	38.9	37.8	38.1	31		34	31	35	32.4	35
DIN 4102 B2 rating (cm)	5	/	6.5	8	8.5	15	9.2	6	9	12.5	6.4	7.8
Butler Chimney test												
Flame spread	15.9 cm	20 cm 91.5	/									
Weight retention			89.8	n.d.	n.d.	n.d.	87					
92.6 %												
Smoke development (NBS)	137	176	66	85	94	149	86					
% skin cure (45-50C mold temp)	>70% at 7 min	25% at 7 min	100% at 5 min	50% at 7 min	90% at 7 min	20% at 7 min	25% at 5 min	100% 12 min	100% 12 min	70% (soft foam) 12'	100% 12 min	50% (soft foam) 12

**Polyol E A propanetriol initiated oxypropylene polyol, VORANOL CP1055, available from The Dow Chemical Company. Hydroxyl Number: 165.